What is claimed is:

1. A method for comprehensively representing video information in a manner facilitating indexing of the video information, comprising the step of:

dividing a continuous video stream into a plurality of video scenes, each of said video scenes comprising one or more video frames including one key frame; and

further comprising at least one of the steps of:

dividing, using intra-scene motion analysis, at least one of said plurality of scenes into one or more layers;

representing, as a mosaic, at least one of said pluraliy of scenes;

computing, for at least one layer or scene, one or more content-related appearance attributes; and

storing, in a database, said content-related appearance attributes or said mosaic representations.

2. The method of claim 1, wherein selected scenes are divided into a background layer and a foreground layer, and a mosaic representation of said selected scenes comprises a two dimensional mosaic representation.

3. The method of claim 1, further comprising the steps of

storing said plurality of scenes in a mass storage unit; and

retrieving, in response to a database query, scenes associated with one or more desired attributes defined in said database query.

4. The method of claim 3, wherein said mosaic representation comprises one of a two dimensional mosaic, a three dimensional mosaic and a network of mosaics

5. The method if claim 1, wherein said step of computing a content-based appearance attribute for a layer of a scene comprises the steps of:

generating an image pyramid of said layer;

filtering, using one or more filters associated with said content-based appearance attribute, each subband of said image pyramid to produce respective one or more feature maps associated with each subband; and

integrating said one or more feature maps associated with each respective subband to produce respective attribute pyramid subbands, wherein each of said attribute pyramid subbands comprises a content-based appearance attribute subband associated with a corresponding image pyramid subband.

6. The method of claim 5, wherein said content-based appearance attribute comprises at least one of a luminance attribute, a chrominance attribute and a texture attribute.

7. The method of claim 5, wherein said step of filtering further comprises the step of:

rectifying each of said one or more feature maps associated with each subband.

8. The method of claim 5, further comprising the step of:

collapsing said attribute pyramid subbands to produce a content-based appearance attribute.

9. The method of claim 1, further comprising the step of:

receiving a request for video information substantially matching a desired content-related appearance attribute; and

retrieving video frames or scenes having at least one layer associated with content-related appearance attributes substantially matching said desired content-related appearance attribute.

10. The method of claim 9, wherein said step of receiving a request comprises the steps of:

identifying a query type and a query specification, said query type comprising one of a luminance, chrominance and texture query type, said query specification defining a desired property of said identified query type;

selecting a predetermined filter type associated with said identified query type; and

calculating, using said predetermined filter type and said desired property, a desired content-related appearance attribute, said desired content-related appearance attribute being suitable for comparing to said content-related appearance attributes stored in said database.

11. The method of claim 1, further comprising the steps of:

storing, in a database, ancillary information associated with one or more layers or frames of one or more scenes.

12. A method for generating a video information database, comprising the steps of:

segmenting a video information stream into a plurality of scenes;

analyzing each of said plurality of scenes to identify a plurality of attributes, including content-based attributes, associated with each scene; and

storing, in a database, said plurality of identified attributes associated with each scene.

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13. The method of claim 12, wherein said step of segmenting comprises the steps of:

generating a descriptor vector of a predetermined type for each video frame of a video information stream;

calculating a difference between descriptor vectors of successive frames; and

generating a scene cut indicium in response to said calculated difference exceeding a threshold level.

14. The method of claim 12, wherein said step of segmenting comprises the steps of:

generating, in a first pass, a descriptor vector of a predetermined type for each video frame of a video information stream;

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calculating, using said generated descriptor vectors, a descriptor vector threshold level;

calculating, in a second pass, a difference between descriptor vectors of successive frames; and

generating a scene cut indicium in response to said calculated difference exceeding a threshold level.

15. The method of claim 12, further comprising the steps of:

identifying a key frame within each video segment; and

representing said plurality of scenes as two-dimensional mosaics, three-dimensional mosaics or three-dimensional structures.

16. The method of claim 12, wherein said step of analyzing each of said plurality of scenes comprises the steps of:

filtering, using one or more filters associated with a first predetermined image attribute, at least one representative frame of each scene to generate respective feature vectors of said first predetermined image attribute for each scene; and

filtering, using one or more filters associated with a second predetermined image attribute, said at least one representative frame of each scene to generate respective feature vectors of said second predetermined image attribute for each scene.

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17. A method for browsing a video program stored in a mass storage unit, said video program comprising a plurality of video scenes, said video scenes comprising at least a representative video frame, said method comprising the steps of:

providing a database associated with the stored video program, said database comprising attribute information associated with each of said representative video frames;

formulating a query utilizing attribute information associated with a desired video frame;

searching said database to identify video frames substantially satisfying said query; and

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retrieving, from said mass storage unit, one or more of said identified video frames.

18. The method of claim 17, wherein said step of formulating a query comprises the steps of:

selecting a query type;

selecting a query specification; and

computing a multi-dimensional feature vector using said query type and query specification.

19. The method of claim 18, wherein said query specification is selected by identifying a portion of a displayed image, and said multi-dimensional feature vector is calculated using said query type and said identified potion of said displayed image.

20. The method of claim 19, further comprising the steps of:

formatting, for subsequent presentation on a display device, each scene including one or more of said identified video frames; and

transmitting said formatted scenes.

Sub A5

21. A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps of:

(a) dividing a continuous video stream into a plurality of video scenes, each of said video scenes comprising one or more video frames including one key frame; and at least one of the steps of:

(b) dividing, using intra-scene motion analysis, at least one of said plurality of scenes into one or more layers;

(c) representing, as a mosaic, at least one of said pluraliy of scenes;

(d) computing, at least one layer or scene, one or more content-related appearance attributes; and

(e) storing, in a database, said content-related appearance attributes or said mosaic representations.

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